

# Fledge - Mature to Stage Three (Impact)

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## Status

- **Presented to the TAC:** March 22, 2023
- **TAC Project Review:**
  - Subgroup Review Meeting: April 3, 2023
  - Subgroup Readout: April 5, 2023
- **TAC Vote Approved:** April 13, 2023
- **Governing Board Vote Approved:**

## Project Resources

- **Web site:** <https://www.lfedge.org/projects/fledge/>
- **Wiki:** [Fledge Home](#)
- **Analytics:** <https://insights.lfx.linuxfoundation.org/projects/lfedge%2Ffledge/dashboard>
- **Communication & support:** [LF Edge Slack](#), [automatic invite](#) if you have no account there
  - NOTE: Fledge's official Slack channels are all prefixed with "fledge"
- **Mailing Lists and Calendar:** LF Edge groups: <https://lists.lfedge.org/groups>
  - Fledge: <https://lists.lfedge.org/g/fledge>
  - Fledge TSC: <https://lists.lfedge.org/g/fledge-tsc>
- **YouTube playlist:** [https://www.youtube.com/playlist?list=PLgohd895XSUeQyifp-kq\\_xEUqGFLCFGgJ](https://www.youtube.com/playlist?list=PLgohd895XSUeQyifp-kq_xEUqGFLCFGgJ)

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## Stage 3: Impact Stage

### Definition

The Impact Stage is for projects on a self-sustaining cycle of development, maintenance, and long-term support. Impact Stage projects are widely used in production environments with a significant number of public use cases. Moreover they have broad, well-established communities with a number of diverse contributors.

### Expectations

- Are used in production environments.
- Impact Stage projects are expected to participate actively in TAC proceedings, and as such have a binding vote on TAC matters requiring a formal vote, such as the election of a TAC Chair.
- Projects that have publicly documented release cycles.
- Projects that are able to attract a number of committers on the basis of its production usefulness.
- Projects that have several, publicly known, end-user deployments.

### Benefits

They receive ongoing financial and marketing support from the Foundation, and are expected to cross promote the foundation along with their activities.

- Annual discretionary budget

### Acceptance Criteria

To graduate from At Large or Growth status a project must meet the Growth stage criteria plus:

#### Stage 2: Growth requirements:

- Demonstrate regular project leadership (typically TSC) meetings. Project leadership should meet monthly at a minimum unless there are extenuating circumstances (ex: holiday period).
- Development of a growth plan (to include both roadmap of projected feature sets as well as overall community growth/project maturity), to be done in conjunction with their project mentor(s) at the TAC.
- Document that it is being used in POCs.
- Demonstrate a substantial ongoing flow of commits and merged contributions.
- Demonstrate that the current level of community participation is sufficient to meet the goals outlined in the growth plan.
- Demonstrate a willingness to work with (via interoperability, compatibility or extension) other LF Edge projects to provide a greater edge solution than what can be done by the project alone.
- Onboard all project repositories with [LFX Security](#). Working toward or achieving OpenSSF badging would be a plus.
- Receive a two-thirds vote of all TAC representatives that do not abstain the vote and a majority vote of the Governing Board to move to Growth Stage.

#### Stage 3: Impact requirements:

- Have a defined governing body of at least 5 or more members (owners and core maintainers).
- Have a documented and publicly accessible description of the project's governance, decision-making, and release processes.
- Have a healthy number of committers from at least two organizations. A committer is defined as someone with the commit bit; i.e., someone who can accept contributions to some or all of the project.
- Establish a security and vulnerability process which at a minimum includes meeting ("Met" or "?") all [OpenSSF best practices security questions](#) and [SECURITY.md](#).
- Demonstrate evidence of interoperability, compatibility or extension to other LF Edge Projects. Examples may include demonstrating modularity (ability to swap in components between projects).
- Adopt the Foundation Code of Conduct.
- Explicitly define a project governance and committer process. This is preferably laid out in a [GOVERNANCE.md](#) file and references a [CONTRIBUTING.md](#) and [OWNERS.md](#) file showing the current and emeritus committers.
- Have a public list of project adopters for at least the primary repo (e.g., [ADOPTERS.md](#) or logos on the project website).
- Receive a two-thirds vote of all TAC representatives that do not abstain the vote and a majority vote of the Governing Board to move to Impact stage. Projects can move directly from At Large to Impact, if they can demonstrate sufficient maturity and have met all requirements.

## Compliance with Requirements

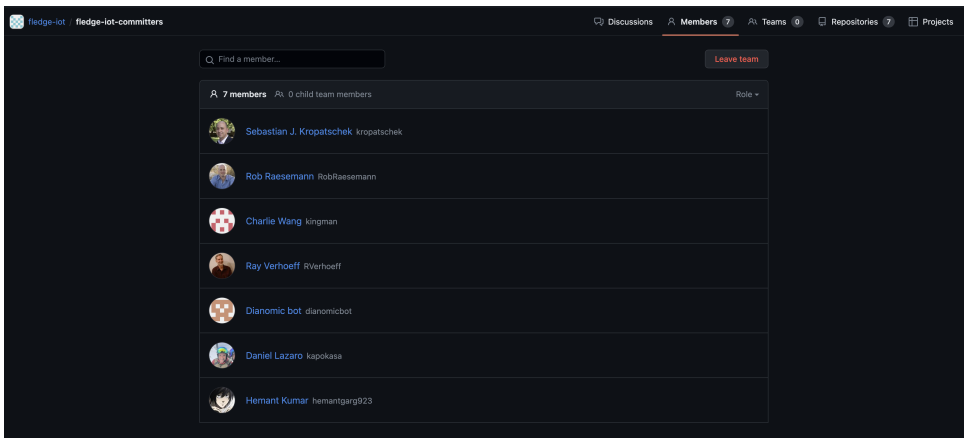
### Stage 2: Growth

Requirement	Evidence
Demonstrate regular project leadership	<a href="#">Technical Steering Committee (TSC)</a>
Growth plan	<p>The Fledge project and community plans to create a strong ecosystem around Fledge to attract more users and stimulate community growth by:</p> <ul style="list-style-type: none"> <li>• Making It <b>easy</b> for everyone <b>to use</b> the project through <a href="#">documentation</a>.</li> <li>• Clearly explaining how to <a href="#">contribute</a>.</li> <li>• Building personal relationships, fostering <a href="#">communication</a> and <a href="#">collaboration</a>.</li> <li>• Make people feel included. (mentoring?)</li> <li>• Setting a <a href="#">code of conduct</a>.</li> </ul> <p>The Fledge community has been growing steadily over the years incorporating a diverse set on contributors from various organizations.</p> <ul style="list-style-type: none"> <li>• Recently the <a href="#">Fledge TSC</a> was expanded its voting members to incorporate a diverse representation of organizations.</li> <li>• Growing attendance from a variety of users and contributors.</li> <li>• Demonstrations of new features.</li> </ul> <p>The Fledge community has identified additional organizations focused on Industrial IIoT standards and systems. We intend to grow the Fledge community by engaging all 4 in PoCs, edge strategies and edge contributions. The four organizations are LF Energy, OSDU, CESMII and the Eclipse Foundation.</p> <ul style="list-style-type: none"> <li>• <a href="#">LF Energy</a>: is an open source foundation that focuses on power systems hosted within the Linux Foundation.</li> <li>• <a href="#">OSDU (Open Subsurface Data Universe)</a>: The OSDU Forum is developing an open source, standards based, technology agnostic data platform. Primarily focuses on oil and gas and renewables.</li> <li>• <a href="#">CESMII</a>: Radically accelerate the development and adoption of advanced sensors, controls, platforms, and models, to enable Smart Manufacturing (SM) to become the driving sustainable engine that delivers real-time business improvements in U.S. manufacturing.</li> <li>• <a href="#">Eclipse Foundation</a>: The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable, and business-friendly environment for open source software collaboration and innovation.</li> <li>• <a href="#">Timelords</a>: Community of experts focused on Industrial IoT and time-series data to transform their business focused on collecting, maintaining, and using time-series data.</li> </ul> <p>See more under <a href="#">Growth Plan</a>, <a href="#">Roadmaps</a></p>
Used in PoCs	<p>Several public <a href="#">Use Cases</a> cases have been documented and implemented on PoCs.</p> <p>New ones include:</p> <ul style="list-style-type: none"> <li>• <a href="#">UC Davis and Opus One uses Fledge</a> to create safer wine-making conditions via multi-node wireless sensor network to produce world class wine.</li> <li>• <a href="#">A hiker used Fledge</a> to collect temperature, humidity and air quality data while hiking on the beautiful Laugavegur trail in Iceland.</li> <li>• <a href="#">Open Horizon Smart Agriculture SIG</a>: <ul style="list-style-type: none"> <li>◦ <a href="#">Milestone 1: Table Garden</a></li> <li>◦ <a href="#">Milestone 2: Outdoor single sensor</a></li> </ul> </li> <li>• <a href="#">FledgePOWER Use Cases</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Demo</a></li> </ul> </li> <li>• <a href="#">OSDU</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Fledge OSDU Slides</a></li> <li>◦ <a href="#">OSDU Edge Recording</a></li> <li>◦ <a href="#">OSDU Edge Video</a></li> </ul> </li> <li>• <a href="#">NIST Team SmartIoT</a></li> </ul> <p>For further info: <a href="#">Use Cases</a></p>

Substantial ongoing commits and contributions	<a href="#">Fledge LFX Insights (Last Year)</a>
Community participation meets growth plan goals	<p>Several industrial communities in energy verticals have been the main focus but not limited to:</p> <ul style="list-style-type: none"> <li>• <a href="#">Timelords</a>: Community of experts focused on Industrial IoT and time-series data to transform their business focused on collecting, maintaining, and using time-series data.</li> <li>• <a href="#">LF Energy</a>: is an open source foundation that focuses on power systems hosted within the Linux Foundation.</li> <li>• <a href="#">OSDU (Open Subsurface Data Universe)</a>: The OSDU Forum is developing an open source, standards based, technology agnostic data platform. Primarily focuses on oil and gas and renewables.</li> <li>• <a href="#">NIST Team SmartIoT</a>: Team SmartIoT was formed to leverage the breadth and the depth of the experience of the team members in IoT and physics-based flood simulation to address the realistic IoT data generation challenge.</li> <li>• <a href="#">UC Davis Winery of the future - Opus One/UC Davis</a></li> </ul> <p>More information on past and ongoing collaboration can be found here: <a href="#">Cross-LF Edge Collaboration</a>, <a href="#">Fledge Roadmap 2020/2021</a> and <a href="#">Fledge Home</a>.</p> <h2>Achievements</h2> <h3>FledgePOWER</h3> <p><a href="#">FledgePOWER</a> is a multi-protocol translation gateway for power systems based on the industrial IoT LF Edge project. This cross foundation collaboration between <a href="#">LF Edge</a> and <a href="#">LF Energy</a> ensures strong cooperative governance and technical alignment between the two communities. FledgePOWER aims to build and grow a community of end-users, developers, utilities, and other players to collaborate to solve current and future challenges in the energy space. Further information can be found on <a href="#">FledgePOWER Wiki</a> and <a href="#">Demo</a></p> <h3>OSDU Edge</h3> <p>OSDU has selected Fledge and EVE as the edge stack architecture for <a href="#">OSDU Edge</a>. Meeting <a href="#">OSDU Edge</a> requirements with <a href="#">LF Edge</a> projects mitigating lock-in through vendor-neutral governance and interoperable solutions. Fledge is now in the <a href="#">OSDU Edge Lab</a>.</p> <p>The architecture was successfully demoed to OSDU members in October, 2021.</p> <ul style="list-style-type: none"> <li>• <a href="#">Fledge OSDU Slides</a></li> <li>• <a href="#">OSDU Edge Recording</a></li> <li>• <a href="#">OSDU Edge Video</a></li> </ul> <p>See more under <a href="#">Growth Plan</a>, <a href="#">Roadmaps</a></p>
Evidence of interoperability, compatibility with other LF Edge projects	<p>The latest Fledge collaboration includes:</p> <ul style="list-style-type: none"> <li>• <a href="#">Open Horizon Smart Agriculture SIG</a>: The Smart Agricultural special interest group is optimizing agriculture with technology, and using Fledge in the following use cases: <ul style="list-style-type: none"> <li>◦ <a href="#">Milestone 1: Table Garden</a></li> <li>◦ <a href="#">Milestone 2: Outdoor single sensor</a></li> </ul> </li> <li>• Project EVE <ul style="list-style-type: none"> <li>◦ <a href="#">OSDU Edge Lab</a></li> <li>◦ <a href="#">Fledge OSDU Slides</a></li> <li>◦ <a href="#">OSDU Edge Recording</a></li> <li>◦ <a href="#">OSDU Edge Video</a></li> </ul> </li> </ul> <p>More information on past and ongoing collaboration can be found here: <a href="#">Cross-LF Edge Collaboration</a>, <a href="#">Fledge Roadmap 2020/2021</a> and <a href="#">Fledge Home</a>.</p>
Onboard all project repositories with <a href="#">LFX Security</a>	<a href="#">LFX Security Fledge</a>

## Stage 3: Impact

Requirement	Evidence
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Have a defined governing body of at least 5 or more members (owners and core maintainers)	<p>The <a href="#">Technical Steering Committee (TSC)</a> has expanded its voting members to 6 as follows:</p> <ul style="list-style-type: none"> <li>• <b>Mark Riddoch - Dianomic - Chair</b></li> <li>• Tom Arthur - Dianomic</li> <li>• Daniel Lazaro - AVEVA</li> <li>• Benoit Jeanson - RTE</li> <li>• <b>Robert Raesemann - Raesemann Enterprises - CoChair</b></li> <li>• Mike Styer - Google</li> </ul>
Documented governance, decision-making, release processes	<p>Fledge is an independent open-source project and not controlled by any single company. To emphasize this Fledge is governed under the Linux Foundation Edge and has graduated through the different <a href="#">Project Stages: Definitions and Expectations</a>. Fledge is currently a Stage 2 project under this framework. For more information go to the <a href="#">Governance</a> section.</p> <p>The following documented processes are in place:</p> <ul style="list-style-type: none"> <li>• <a href="#">Repository Approval Policy</a></li> <li>• <a href="#">TSC Email Votes</a></li> <li>• <a href="#">Technical Steering Committee (TSC)</a></li> <li>• <a href="#">GOVERNANCE.MD</a></li> <li>• <a href="#">Releases</a></li> </ul>
Healthy number of committers from at least two orgs (A committer is defined as someone with the commit bit; i.e., someone who can accept contributions to some or all of the project)	<p><a href="#">Fledge LFX Insights (Last Year)</a></p> <p><a href="https://github.com/orgs/fledge-iot/teams/fledge-iot-committers">https://github.com/orgs/fledge-iot/teams/fledge-iot-committers</a></p> 
Establish a security and vulnerability process which at a minimum includes meeting	<p><a href="#">OpenSSF Badge</a></p> <p><a href="#">SECURITY.md</a></p>
Evidence of interoperability, compatibility with other LF Edge projects	<p>The latest Fledge collaboration includes:</p> <ul style="list-style-type: none"> <li>• <a href="#">Open Horizon Smart Agriculture SIG</a>: The Smart Agricultural special interest group is optimizing agriculture with technology, and using Fledge in the following use cases: <ul style="list-style-type: none"> <li>◦ <a href="#">Milestone 1: Table Garden</a></li> <li>◦ <a href="#">Milestone 2: Outdoor single sensor</a></li> </ul> </li> <li>• Project EVE <ul style="list-style-type: none"> <li>◦ <a href="#">OSDU Edge Lab</a></li> <li>◦ <a href="#">Fledge OSDU Slides</a></li> <li>◦ <a href="#">OSDU Edge Recording</a></li> <li>◦ <a href="#">OSDU Edge Video</a></li> </ul> </li> </ul> <p>More information on past and ongoing collaboration can be found here: <a href="#">Cross-LF Edge Collaboration</a>, <a href="#">Fledge Roadmap 2020/2021</a> and <a href="#">Fledge Home</a></p>
Adopt LF Code of conduct	The Fledge community adheres to the <a href="#">LF Code of Conduct</a> as described here: <a href="#">Code of Conduct</a>
Explicitly define a project governance and committer process	The Fledge community has defined and documented the following <a href="#">Repository Approval Policy</a> as well as the committer process here: <a href="#">CONTRIBUTING.md</a> and project <a href="#">Governance</a> .
Public list of project adopters	The Fledge <a href="#">Community</a> welcomes contributions of all types; documentation, code changes, new plugins, scripts, just simply reports of the way you use Fledge or suggestions of features you would like to see within Fledge. A public list of project adopters can be found in <a href="#">ADOPTERS.md</a>
>= 2/3 approval vote of TAC & majority of Governing Board	

